

AMENDMENT TO THE CLAIMS

1. (Currently Amended) A flexible suspension circuit comprising:
a flexible insulated base;
a plurality of transducer leads printed on the flexible insulated base to ~~electrically interface transducer elements of a head to drive circuitry;~~ and
a flexure element ~~printed~~ formed of a shape memory material on the flexible insulated base ~~having an energizable length dimension differential~~ to provide a flexure force.
2. (Original) The flexible suspension circuit of claim 1 and further comprising flexure leads fabricated on the flexible insulated base and conductivity coupled to the flexure element to supply a voltage potential across opposed ends of the flexure element.
3. (Canceled)
4. (Original) The flexible suspension circuit of claim 1 wherein the flexible insulated base is formed of a polyimide material.
5. (Original) The flexible suspension circuit of claim 1 including a plurality of flexure elements formed of a shape memory material at spaced positions on the flexible insulated base ~~having an energizable length dimension differential.~~
6. (Currently Amended) A head suspension assembly comprising:
a suspension ~~assembly including a cantilevered suspension arm having an elongated cantilevered length and the suspension arm~~ portion including a bending portion between a proximal end and a distal end of the

~~suspension portion and the bending portion having a reduced flexure strength between a proximal end and a distal end of the bending portion and including a stepped flexure strength increase from the bending portion to a distal portion of the suspension arm extending from the distal end of the bending portion;~~
~~a head including a slider coupled to the cantilevered suspension arm and adapted to supply a preload force to the head to bias the head toward a disc; and~~
a ~~shape memory~~ flexure element formed of a shape memory alloy material having an energizable length differential having opposed first and second ends and an elongated length and the elongated length of the shape memory flexure element extending across the bending portion with the a first end of the flexure element coupled to the suspension arm portion proximal of the bending portion and the a second end of the flexure flexure element coupled to the suspension arm portion distal of the bending portion.

7.(Currently Amended) The head suspension assembly of claim 6 wherein the suspension arm portion supplies a static preload force to ~~the a~~ head and the ~~shape memory~~ flexure element is energized to release the static preload force for operation.

8.(Currently Amended) The head suspension assembly of claim 6 wherein the ~~shape memory~~ flexure element is energized to provide in-situs adjustment of one of fly height of ~~the a~~ head or the head suspension assembly or the preload force to the head.

9.(Currently Amended) The head suspension assembly of claim 6 wherein the ~~shape memory~~ flexure element is printed on a flexible suspension circuit comprising a flexible insulated base having

transducer leads printed on the flexible insulated base to electrically interface transducer elements of ~~thea~~ head of the head suspension assembly to drive circuitry.

10. (Currently Amended) The head suspension assembly of claim 6 assembled in a disc drive and the disc drive includes a "spin-up" control mode and a "read/write" control mode wherein in the "spin-up" control mode, the ~~shape memory~~ flexure element is energized to release a static preload force to reduce stiction during "spin-up".

11. (Currently Amended) The head suspension assembly of claim 10 wherein the ~~shape memory~~ flexure element is energized to adjust the preload force to ~~thea~~ head or fly height of the head or the head suspension assembly in the read/write control mode.

12. (Currently Amended) The suspension assembly of claim 6 including a plurality of ~~shape memory~~ flexure elements formed of the shape memory material having opposed first and second ends coupled to the suspension ~~arm~~ portion proximal and distal of the bending portion.

13. (Currently Amended) The head suspension of claim 6 wherein the suspension ~~arm~~ portion includes multiple spaced bending portions ~~having proximal and distal ends and having a reduced flexure strength between the proximal and distal ends of the bending portions and the multiple bending portions including multiple stepped flexure strength increases from the multiple bending portions to portions of the suspension arm distally spaced from the bending portions and at least one of the multiple spaced bending portions includes the shape memory flexure element formed of the shape memory alloy material extending thereacross.~~

14. (Currently Amended) The head suspension of claim 13 including a plurality of ~~shape-memory~~ flexure elements formed of the shape memory alloy material including a first shape memory flexure element coupled to one of the multiple spaced bending portions and a second shape memory flexure element coupled to another of the multiple spaced bending portions.

15. (Currently Amended) An ~~head suspension assembly~~ comprising:

~~a head suspension assembly including a cantilevered suspension arm having an elongated cantilevered length, the suspension arm including a first bending portion having a reduced flexure strength and a second bending portion having a reduced flexure strength spaced from the first bending portion and the first and second bending portions including a flexure step increase from the reduced flexure strength of the first or second bending portions and a portion of the suspension arm distally spaced from the first or second bending portions;~~

~~— a head including a slider coupled to the cantilevered suspension arm and adapted to supply a preload force to the head to bias the head toward a disa suspension portion; and~~

~~a shape-memory fly height controller including a flexure element having an energizable length differential having opposed first and second ends and an elongated length and the elongated length of the shape memory flexure element extending across one of said first or second bending portions with the first end of the flexure element coupled to the suspension arm proximal to the one of the first or second bending portions and the second end of the flexure element coupled to the suspension arm distal of the one of the first or second~~

bending portions formed of a shape memory alloy energizable to adjust flexure of the suspension portion to adjust a fly height of a head of the head suspension.

16. (Currently Amended) The ~~head suspension~~ assembly of claim ~~15~~ 22 wherein the suspension portion includes a plurality of bending portions including a first bending portion and a second bending portion and ~~further comprising another shape memory~~ the flexure element extending s across the other of said first or second bending portions with the first end of the other flexure element coupled to the suspension arm proximal of the other of the first or second bending portions and the second end of the other flexure element coupled to the suspension arm distal of the other of the first bending portion or the second bending portions.

17. (Currently Amended) The ~~head suspension~~ assembly of claim ~~15~~ wherein the 22 wherein the suspension portion includes a plurality of bending portions including a first bending portion and a second bending portion ~~is~~ distally spaced from the first bending portion and has a stiffer flexure strength than the first ~~bending portion~~ and the flexure element extends across the second bending portion.

18. (Currently Amended) The ~~head suspension~~ assembly of claim ~~15~~ wherein the 22 wherein the suspension portion includes a plurality of bending portions including a first bending portion ~~is~~ proximally spaced from the a second bending portion and the second bending portion ~~is~~ stiffer than the first bending portion and the flexure element extends across the first bending portion.

19. (Canceled)

20. (Canceled)

21. (New) The head suspension assembly of claim 6 wherein the bending portion includes a proximal end and a distal end and the bending portion having a flexure strength increase from the distal end of the bending portion to a distal portion of the suspension portion.

22. (New) The assembly of claim 15 wherein the suspension portion includes a bending portion having a reduced bending flexure between a proximal end and a distal end of the suspension portion and the flexure element includes a first end coupled to the suspension portion proximal of the bending portion and a second end coupled to the suspension portion distal of the bending portion.

23. (New) A method comprising steps of:
energizing a shape memory alloy flexure element to adjust one of a fly height of a head or slider relative to a disc surface or preload force.

24. (New) The method of claim 23 and comprising the step of:
energizing the shape memory alloy flexure element to reduce a pre-load force for contact starts and stops.

25. (New) The method of claim 23 wherein the shape memory alloy is energized to adjust or control fly height of the head or slider.
